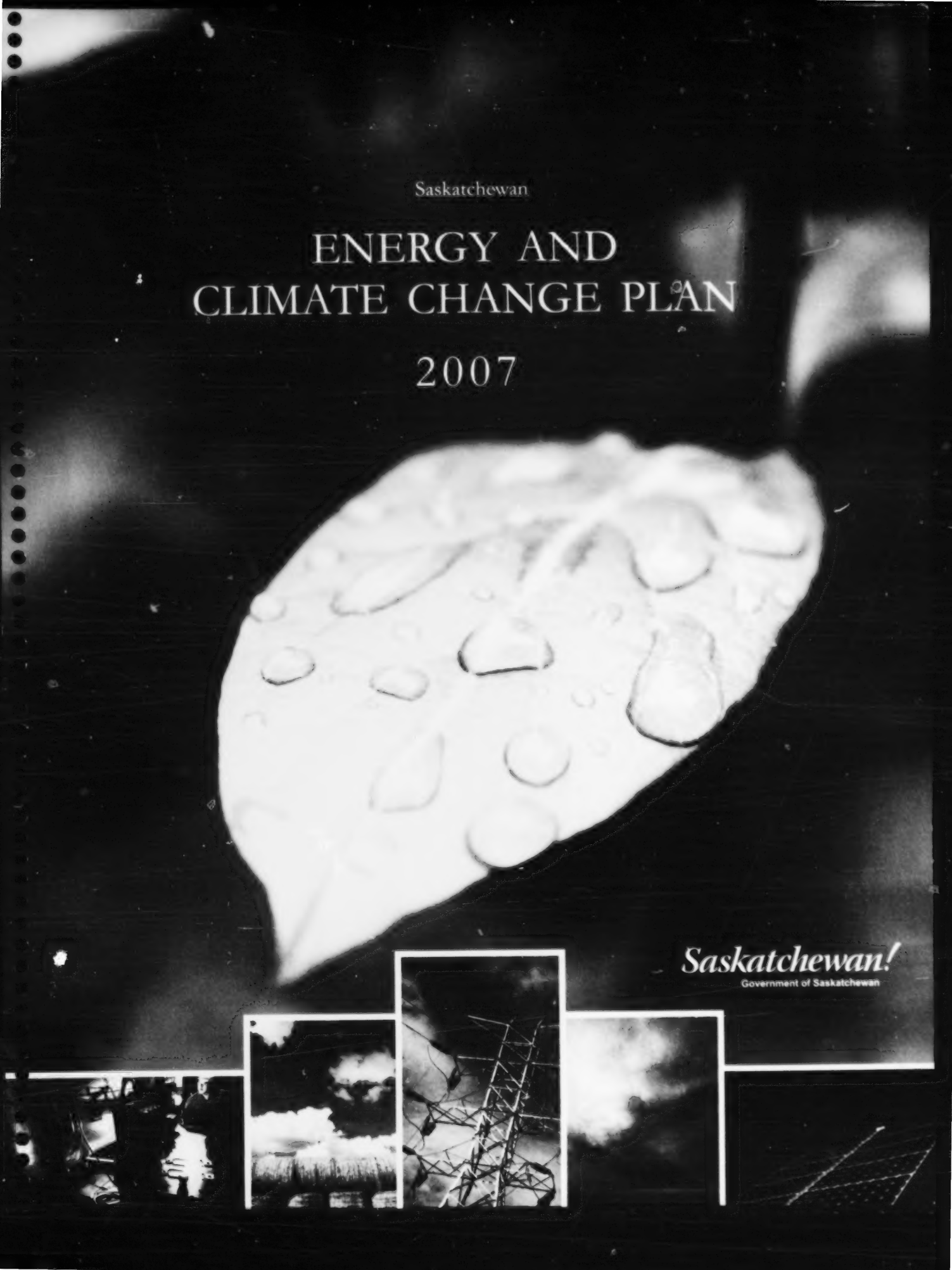
Saskatchewan

ENERGY AND CLIMATE CHANGE PLAN

2007



Saskatchewan!

Government of Saskatchewan

Our Vision

Over the decades between now and 2050, Saskatchewan will become a model jurisdiction of innovative and sustainable energy.

Our Goal

To significantly reduce Saskatchewan's greenhouse gas emissions with specific and measurable targets demonstrating national and international leadership within a green and prosperous economy.

Our Emission Reduction Targets

2010 – Emissions Stabilized

2020 – 32 per cent lower than current levels - a reduction of 22 tonnes per capita

2050 – 80 per cent lower than current levels - a reduction of 55 tonnes per capita

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Premier's Message

Climate change is a challenge unlike any the human race has ever before faced. It requires us to overcome our differences to work together to restore the health of our planet – our home. It is a task that falls to every member of the human family, everywhere on earth.

Saskatchewan is an energy powerhouse. We provide roughly one third of Canada's total primary energy and are the largest per capita energy producer in the country. We are now the second leading producer of oil, the third leading producer of natural gas and the third leading producer of coal in Canada. We are the largest uranium producer in the world.

With strength comes responsibility. Because we are a major producer of the nation's energy, Saskatchewan also generates a significant level of greenhouse gas emissions.

The Saskatchewan Energy and Climate Change Plan affirms our commitment to act to address climate change within the framework of a green and prosperous economy. It sets ambitious targets for reducing greenhouse gas emissions, while acknowledging we will need to lift above our weight to make it happen. It ensures continued support for climate change adaptation measures already in place while also committing to development of a province-wide strategy on climate change adaptation.

I'm very proud of the efforts that are already underway in Saskatchewan, efforts being made by individuals, communities, universities, industry, Crown corporations and government, but we must do more.

Our province has been truly blessed by nature. We have abundant natural resources that furnish us with jobs and a thriving economy.

But Saskatchewan is not immune to the dangers posed by global warming – dangers like more severe droughts, declining surface water, increased numbers of forest fires and more severe weather of all kinds, including floods and tornadoes.

The work we do will have a global impact, but it begins at home. Building a strong future for our youth is one of our government's highest priorities. It is my firm conviction that addressing climate change is of paramount importance to our future, to our children's future and to future generations.

Lorne Calvert

The Honourable Lorne Calvert
Premier of Saskatchewan

Ministers' Message

The *Saskatchewan Energy and Climate Change Plan* represents a point of convergence.

Saskatchewan's *Green Strategy* made a commitment to address the challenges of climate change to ensure sustainable long-term economic growth.

The *Action Plan for the Economy* included a commitment to: "Set out an energy policy that incorporates traditional and alternative energy sources, reflects environmental considerations, and examines the potential of new technologies such as hydrogen and crop-related fuels."

The new *Plan* brings the *Action Plan* and the *Green Strategy* together in a plan to reduce greenhouse gas emissions, grow our renewable energy sector, develop a province-wide climate change adaptation strategy, and encourage continued growth of conventional energy resources while reducing their environmental "footprint". The net effect is sustainable economic growth and a greener, more prosperous Saskatchewan.

The *Plan* commits to reducing greenhouse gas emissions by 32 per cent of 2004 levels by 2020. This will mean a reduction of 22 tonnes per person, by far the largest per capita emissions reduction in Canada. We will then move beyond this to an 80 per cent reduction by 2050, a reduction of 55 tonnes per person, the most ambitious target in Canada.

It will not be easy. Saskatchewan has a harsh climate of temperature extremes, a resource-rich, energy-intensive economy and one of the fastest rates of economic growth in Canada over the past four years. As a result, our province accounts for 9.1 per cent of total Canadian greenhouse gas emissions. There is no single "magic bullet" to reduce emissions, but it can be done.

The new *Plan* shows the way to sustainable growth that protects our environmental heritage and builds on Saskatchewan's energy strengths – a positive contribution to addressing climate change, while maintaining our climate of economic growth.

Maynard Sonntag

The Honourable Maynard Sonntag
Minister of Industry and Resources

John T. Nilson

The Honourable John T. Nilson, Q.C.
Minister of Environment

Highlights

Toward a greener future, Saskatchewan will ...

- Stabilize the absolute level of greenhouse gas emissions by 2010;
- Reduce greenhouse gas emissions by 22 tonnes per person by 2020, a 32 per cent reduction from current levels; and
- Reduce greenhouse gas emissions by 80 per cent from current levels by 2050.

- Ensure all of SaskPower's new and replacement electricity generation facilities are either emissions-free or fully offset by emission credits; and
- Develop a conservation program to reduce SaskPower's electricity load by 300 megawatts by 2017.

- Work with industry to develop E-85 (fuel blends of 85 per cent ethanol and 15 per cent gasoline) Corridors in the Province;
- Encourage all provinces and the federal government to work together to create an E-85 Corridor across Canada;
- Work with industry to increase the percentage of biofuels in Saskatchewan gasoline and diesel;
- Develop a 1.4 billion litre biofuels industry to utilize our natural advantages, create rural jobs, capture environmental benefits, and support our agricultural industry to capture emerging provincial, federal and international market opportunities; and
- Implement a Government and Crown vehicle purchase policy that requires all vehicles to be hybrid-electric, alternative or flex fuel, or within the top 20 per cent efficiency in their class.

- Encourage establishment of agricultural soil sinks to remove over 25 million tonnes of carbon dioxide equivalent annually from the atmosphere by 2012, increasing to over 37 million tonnes per year by 2050; and
- Reforest 20,000 hectares by 2017, storing the equivalent of 4.9 million tonnes of carbon dioxide equivalent in these regenerated forest lands.

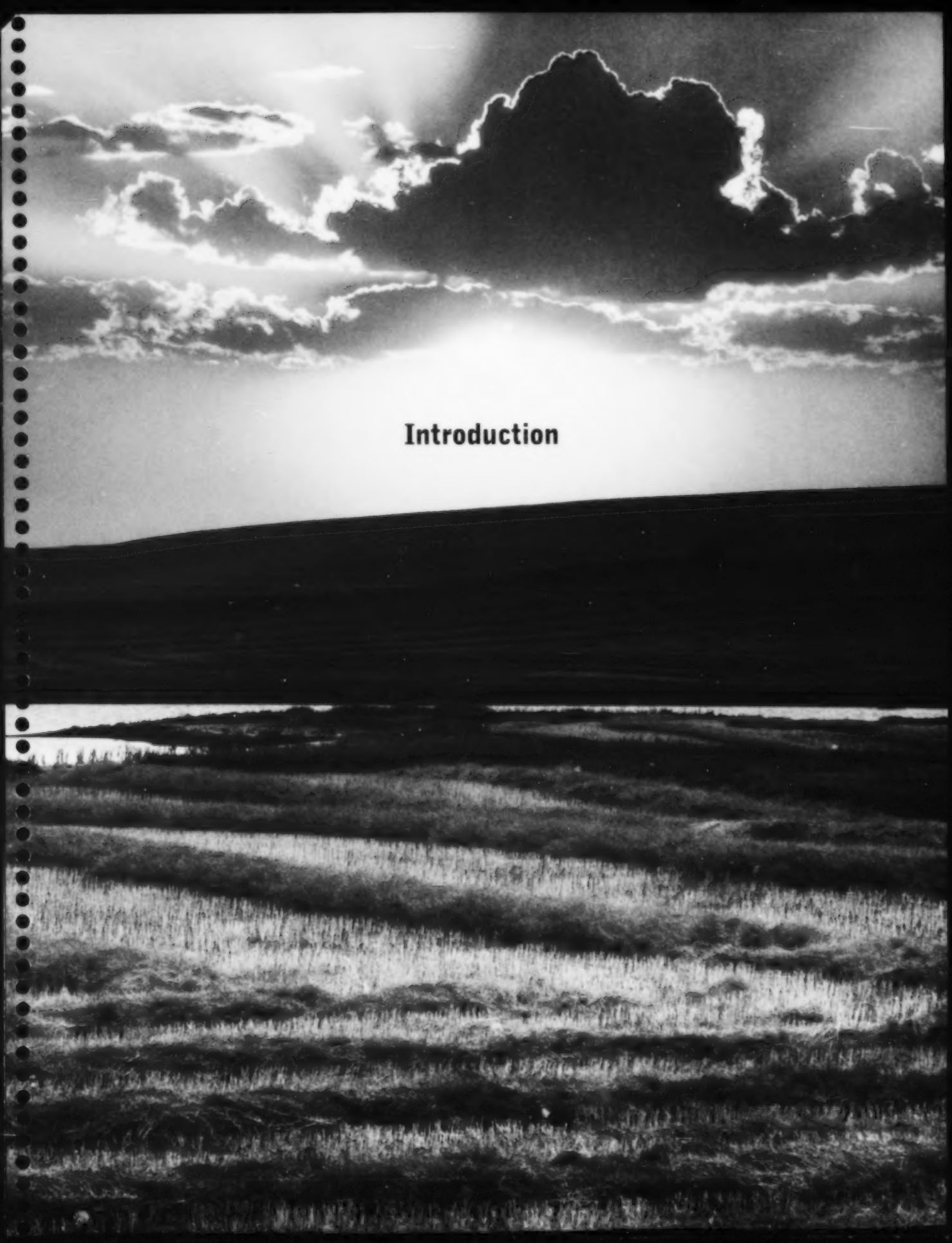
- Work with industry to prepare a report and recommendations on reducing greenhouse gas emissions from flaring and venting associated with oil and gas production; and
- Build on the success of the Petroleum Technology Research Centre and the International Test Centre for Carbon Dioxide Capture in carbon capture and storage.

- Develop a province-wide climate change adaptation strategy; and
- Expand the provincial watershed planning process so that water supplies are better protected from climate change.

- Establish a Bio-Products Centre of Excellence; and
- Establish a Technology Fund to receive voluntary payments from Saskatchewan industry as a method of complying with industry's mandatory emissions reduction obligations under the federal climate change plan.

- Integrate concepts and principles of sustainable development into all appropriate Pre-kindergarten to Grade 12 curricula;
- Work with First Nations and Métis to ensure their full participation in building the green economy; and
- Work with SIAST and the regional colleges and other educational institutions to ensure appropriate educational and training opportunities are available in those areas that will require specialized training in energy efficiency retrofit, solar and wind installation and biomass applications.

- Establish a performance standard of at least 30 per cent greater than the Model National Energy Code for all new government buildings with significant energy consumption; and
- Extend the Saskatchewan EnerGuide for Houses Program and the Saskatchewan Home Energy Improvement Program to 2011.



Introduction

The Imperative to Act

The single most significant environmental challenge facing the globe and citizens of the earth is the changes in our climate that are occurring as a result of greenhouse gas emissions. As global citizens, as citizens of Canada, the people of Saskatchewan accept our role in contributing to global warming as well as our responsibility to do our part to reverse global warming and climate change.

Saskatchewan people are not immune from the consequences of global warming. The melting ice caps and glaciers; the threat to coral reefs; rising sea levels threatening vast numbers of the earth's population; and changes to the earth's eco-systems will change life on earth for all peoples. Here in Saskatchewan, our prairies, our forests and our own fresh water supplies will all be affected by the changes that have already begun and will continue.

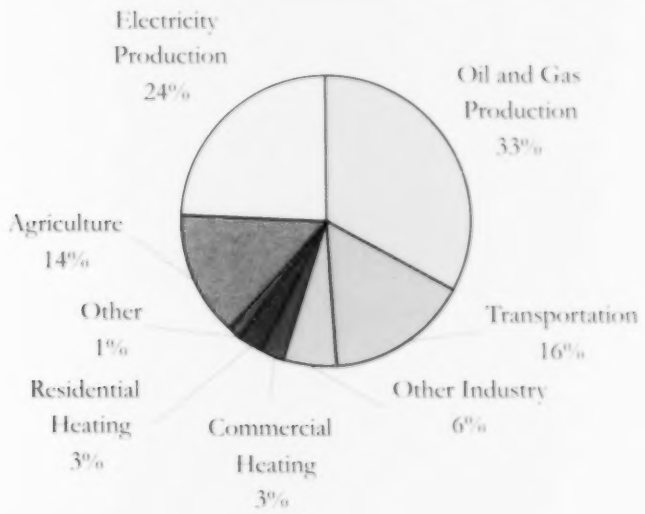
While each of us resides here on the land for a time, we are but caretakers of the inheritance we have received. As today's stewards, we hold this land in trust for our children and our grandchildren. As such, nothing short of bold vision and bold action will enable us to meet the moral responsibility that is ours to exercise for their sake.

Saskatchewan – The Tipping Point

In the North American context, as former Vice President Al Gore said, Saskatchewan represents a 'tipping point'. What that means, is while our population and economy are small on the world stage, we are determined to make a real difference.

By virtue of climate, geography, demographics and economy, Saskatchewan is a major consumer of energy, producer of energy and contributor (on a per capita basis) to greenhouse gas emissions. Saskatchewan's challenges in energy consumption, production and emissions are much more difficult than for other jurisdictions. With three per cent of Canada's population, Saskatchewan contributes nine per cent of Canada's greenhouse gas emissions. Our energy sector, which contributes significantly to our current and future prosperity, also contributes significantly to greenhouse gas emissions, as shown in the chart below. The growth in Saskatchewan's economy, particularly the energy sector, and the associated growth in energy consumption has significantly raised the level of Saskatchewan's emissions.

Figure 1: Current Saskatchewan Greenhouse Gas Emissions by Source (2004)



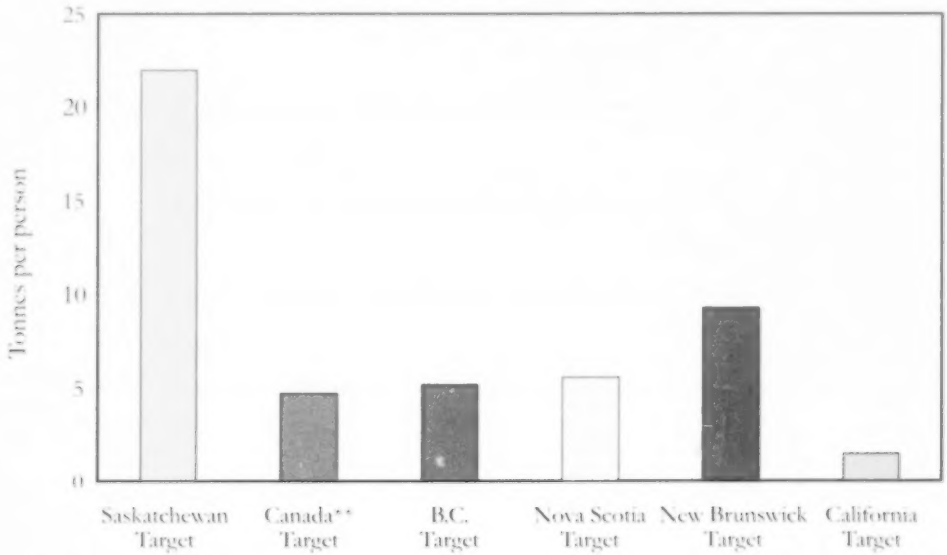
Saskatchewan is demonstrating national and international leadership in addressing climate change, as evidenced by recent efforts in biofuels; in carbon capture and sequestration; in clean coal technology research; in alternative energy, including wind, solar and hydrogen; and in conservation programs. Our wealth of pioneering technologies and sustainable energy options is unmatched by any other single jurisdiction in North America. Already, Saskatchewan has proven that a small but innovative province can make a big difference. We are committing to a path that demonstrates to the world that energy producing jurisdictions can meet the demands of economic prosperity while developing leading edge programs and tools to reduce carbon emissions.

Innovative by nature, the First Peoples of Saskatchewan have for centuries met the challenges of climate and geography. In the century just past, Saskatchewan innovation pioneered universal health care in North America and built co-operative movements as well as co-operative and public enterprise. This *Energy and Climate Change Plan*, built on the foundation of the innovative nature of Saskatchewan people and our courage to pioneer change, proves our commitment to that 'tipping point'. We will once again ensure that a small province can, and is, leading fundamental change.

Pulling Above Our Weight

Saskatchewan's stabilization and reduction targets are very ambitious. We recognize the targets identified by the Kyoto Protocol are national targets and that they cannot be achieved by January 2008 given the size of our challenge. Nonetheless we commit to doing our share. The *Saskatchewan Energy and Climate Change Plan's* 2020 target reflects per capita emission reductions from 2004 emission levels over twice as high as the next most ambitious provincial plan. The current plan proposed by the federal government falls far short of meeting the targets of the Kyoto Protocol. In comparison, the 2020 target of reducing Saskatchewan emissions by 32 per cent from 2004 levels is significantly greater than the percentage reduction required for Canada to meet the Kyoto Protocol.

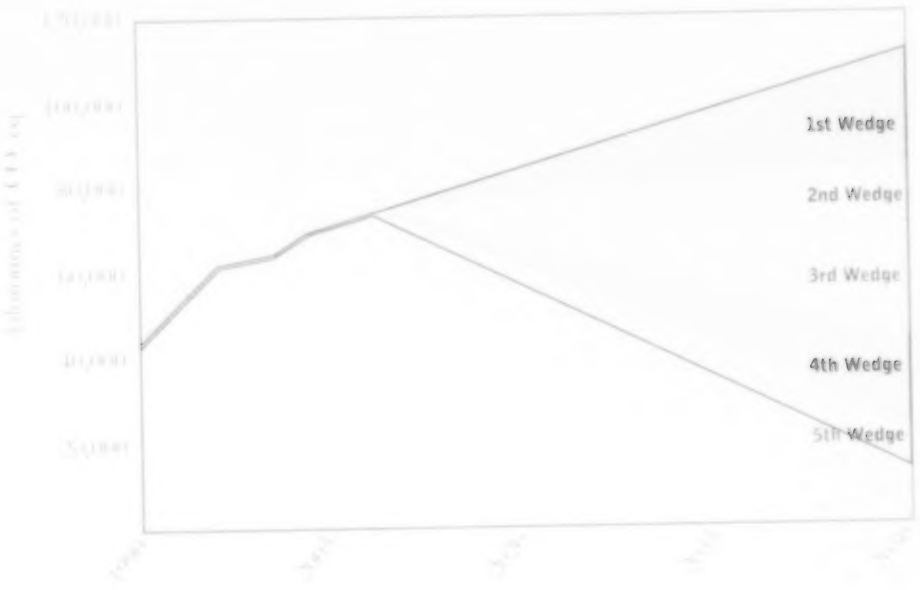
Figure 2: Saskatchewan Emission Reduction Targets in 2020 vs. Targets in Other Jurisdictions*



* Alberta has a 2020 target to reduce emission intensity by 50 per cent from 1990 levels. However, Alberta is not included because its emissions intensity target could not be converted into the tonnes per person format used here.
** Canada's target uses emissions from 2006 levels while all other targets are defined from 2004 emission levels.

Reaching Our Vision and Goal – A Strategy for Change

Figure 3: Saskatchewan's Emissions Reduction Wedge



Legend:

1st Wedge – Conservation and Efficiencies
2nd Wedge – Carbon Capture and Storage in the Oil and Gas and Electricity Sectors
3rd Wedge – Increase the Use of Renewable Energy
4th Wedge – Promote the Creation of Natural Carbon Sinks
5th Wedge – Reduce Methane and Other Emissions from Oil, Gas and Agriculture Sectors

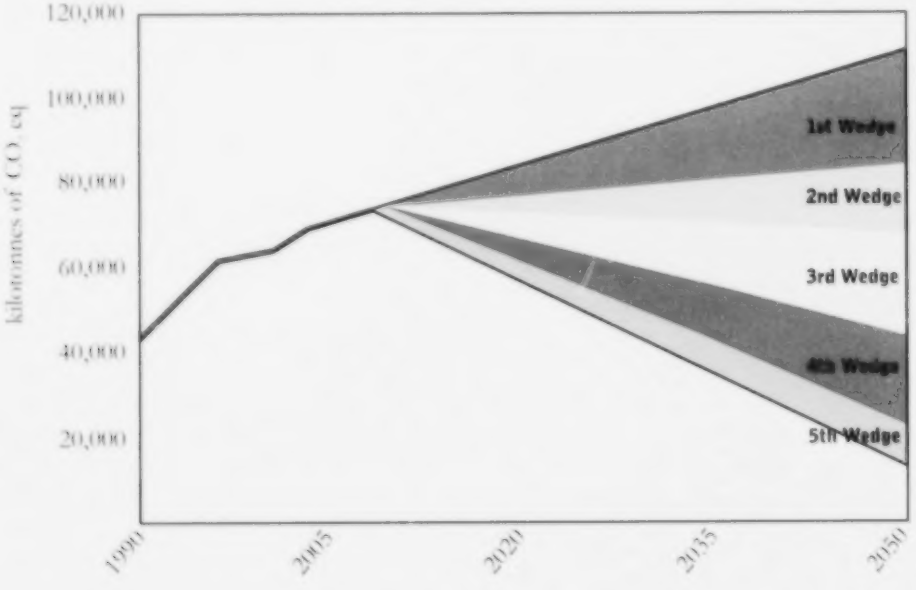
To succeed in meeting the *Plan's* ambitious targets, aggressive efforts will be required in: energy conservation; innovative approaches to reducing the emission from conventional energy production; intensive use of the technologies available to us today; aggressive pursuit of new technologies; significant investments by the province; and much more significant investment from the national government.

Reaching Our Vision and Goal – A Strategy for Change

Saskatchewan's *Energy and Climate Change Plan* is built upon five components, "the emissions reduction wedges", that will provide opportunity for us to exploit technology to its fullest in our pursuit of a green and prosperous economy, but one where our environmental footprint becomes less damaging.

Saskatchewan people and companies are already engaged in bringing innovation to the energy sector. They are helping the province, the nation and the world improve efficiency and conservation; creating alternatives to fossil fuels; and removing carbon dioxide from the environment. We will utilize these innovations as well as emerging technology to achieve our substantial 2020 greenhouse gas reduction target. Beyond 2020, we are confident that new technology will account for an increasingly large portion of the emissions reductions which occur until 2050. The graphic below represents what we believe current and new technologies can accomplish.

Figure 3: Saskatchewan's Emissions Reduction Wedge



Legend:
1st Wedge = Conservation and Efficiency
2nd Wedge = Carbon Capture and Storage in the Oil and Gas and Electricity Sectors
3rd Wedge = Increase the Use of Renewable Energy
4th Wedge = Promote the Creation of Natural Carbon Sinks
5th Wedge = Reduce Methane and Other Emissions from Our Oil, Gas and Agriculture Sectors

Wedges

The 1st Wedge: Conservation and Efficiency

The 2nd Wedge: Carbon Capture and Storage in the Oil and Gas and Electricity Sectors

The 3rd Wedge: Increase the Use of Renewable Energy

The 4th Wedge: Promote the Creation of Natural Carbon Sinks

The 5th Wedge: Reduce Methane and Other Emissions from Our Oil, Gas and Agriculture Sectors

Conservation and Efficiency

Individuals, families, farms, business, communities and governments at all levels have a part to play in adopting attitudes and actions that lead to less energy use. Whether we are in our homes, at work, or involved in our communities, each of us has a responsibility to become more aware of what makes up our current energy use and how we can work to reduce it. Areas of possible significant reductions include: achieving higher energy efficient building standards; designing and driving more efficient vehicles; replacing lighting, appliance and machinery with higher efficiency models; conservation measures and many more.

Today, Saskatchewan offers a wide range of programs to assist in energy conservation. These range from programs to help individuals such as Power Saving Tips and Tools, the EnerGuide Programs, and the ENERGY STAR® sales tax exemption, to programs that assist communities, commercial and industrial facilities, farms and municipalities. A full list of existing programs is available at www.se.gov.sk.ca/green, or by visiting www.saskatchewan.ca.

The *Saskatchewan Energy and Climate Change Plan* establishes an ambitious target for conservation and efficiency gains. By 2017, we commit to saving at least 300 megawatts of SaskPower's electricity generation through demand side management practices. Once we achieve this goal, we will have eliminated the need for the generation of the same amount of electricity that one of our current coal-fired plants generates.

In addition, we will continue our efforts to:

- Begin transition to smart meters;
- Promote and develop energy efficient products and practices through new standards, codes and regulations;
- Promote new technologies such as home energy monitors, especially those that make customers aware of their electrical and other energy consumption and that help them make informed choices about how to reduce energy use;
- Identify barriers that prevent customers from reducing their consumption and work to remove those barriers; and
- Further build upon our commitment to reduce the energy consumption of government's core buildings by 20 per cent through replacement of building components.

Immediate action includes:

- Implementing a Government and Crown vehicle purchase policy that requires all vehicles to be hybrid-electric, alternative or flex fuel, or within the top 20 per cent efficiency in their class;
- Creating a fund to support development of innovative technology that leads to significant reductions in greenhouse gas emissions;
- Developing a demand side management program to reduce SaskPower's electrical load by 300 megawatts by 2017 compared to business as usual, as an alternative to the construction of new facilities;
- Expanding eligibility for the Investment Tax Credit for Manufacturing and Processing to certain types of renewable energy and energy conservation equipment used to generate electricity;
- Working with community organizations and existing programs to reduce emissions associated with older cars by initiating a voluntary province-wide vehicle retirement program to support the existing federal program to retire older cars; and
- Supporting energy conservation and efficiency initiatives in the agricultural sector.

Over the next two years we will:

- Establish a Climate Change Secretariat with increased funding that will have responsibility for coordinating climate change policy and will deliver the existing programs of the current Office of Energy Conservation as well as new ones; and
- Implement new province-wide energy efficiency building standards in consultation with industry.

Over the next five years we will:

- Continue to fund programs for homeowners, including those with low to moderate incomes, that help them to reduce their energy use;
- Maximize development of small-scale, low environmental impact local generation in northern Saskatchewan; and
- Consult with northerners to determine short, medium and long-term requirements for supply and transmission infrastructure.

Carbon Capture and Storage in the Oil and Gas and Electricity Sectors

Saskatchewan's continued prosperity relies in significant measure on the wealth generated by its non-renewable energy resources. However, if we are to seriously address climate change, we must do more to minimize the environmental impact from the production of these resources.

Carbon capture and storage is critical technology. It provides opportunity to enhance production of non-renewable energy resources while significantly reducing greenhouse gas emissions. A May 31, 2007 article in *The Economist* indicates that carbon capture and storage is being studied in three places in the world - in Norway, in Algeria, and at the Weyburn oil field in Saskatchewan. Our province is a world leader in this vitally important climate change technology in part, because of unique geological structures. We will continue to research these technologies and rely on them to capture carbon dioxide that would otherwise be released into the atmosphere by our coal-fired power plants, heavy oil upgraders and fertilizer plants. Through this technology, carbon dioxide can be stored permanently deep underground in existing geological formations, or in producing oil fields which leads to enhanced production as the carbon dioxide pushes oil to production wells where it is pumped to the surface.

It has been estimated that, worldwide, old oil fields, unmineable coal seams, old gas fields, and geological formations containing salt water are large enough that, in principle, they could store all the carbon dioxide emissions from all of the world's fossil fuel fired electricity generation facilities for many years. The situation is very similar in Saskatchewan. Industry already is storing carbon dioxide in our producing oil fields because this will increase oil production. Industry also will be able to store carbon dioxide in several deeply buried geological formations containing salt water. These saline aquifers are extremely extensive and underlie much of the southern half of Saskatchewan. Saskatchewan's exceptional geological storage potential will enable us to store very large volumes of carbon dioxide at relatively low cost for hundreds of years.

Because of work done in Saskatchewan, the United Nations' Intergovernmental Panel on Climate Change has concluded that, after 1,000 years, less than 1 per cent of the carbon dioxide stored in this way will escape. The oil and gas in geological formations in Saskatchewan was trapped many millions of years ago, so these formations are quite capable of retaining carbon dioxide for many centuries.

Over the next year we will:

- Continue to financially support the work of the Petroleum Technology Research Centre and the International Test Centre for Carbon Dioxide Capture to reduce atmospheric greenhouse gas emissions by capturing carbon dioxide from industrial operations, then store it, or use it in enhanced oil recovery activities.

Increase the Use of Renewable Energy

Opportunities for increased use of renewable energy are everywhere. Few, if any, North American jurisdictions have the wealth of renewable energy options available to them as does Saskatchewan. We have made great progress in research and development of renewable energy over the past five years. Meeting our vision and goal will require determined pursuit of renewable energy options in the decades to come.

Saskatchewan currently has the largest per capita wind generation of any region in Canada, and also produces a large amount of hydro-electric power. A number of additional renewable power production technologies are under development or currently being demonstrated in the province. These include biomass systems, which provide opportunity for industry to create its own power from agricultural or forestry wastes, or to sell the energy in the commercial marketplace.

In the transportation sector, use of alternative and renewable fuels can help lower emissions until emission-free vehicles become more affordable. Saskatchewan was the first province to mandate ethanol blend in gasoline. The Plan encourages even higher percentages and the infrastructure to support E-85 vehicles. E-85 is the term for motor fuel blends of 85 per cent ethanol and 15 per cent gasoline. Biodiesel can be used by diesel vehicles such as trucks, buses and farm machinery. The federal government has set a target of a two per cent biodiesel mandate by no later than 2012.

In addition, the production of ethanol and biodiesel provide economic opportunities for the province. Saskatchewan currently has two biodiesel plants and three ethanol plants, with a fourth under construction. Development work on cellulose-based production technologies for ethanol is also underway. This will allow use of forestry and agricultural wastes as feedstocks, reducing our current reliance on food sources while enhancing overall value-added from forestry and farm production activity.

Saskatchewan is also a leader in the development of hydrogen technology. The Saskatchewan Research Council has introduced the world's first dual-fuel vehicles that use either hydrogen/diesel or hydrogen/gasoline. Several Saskatchewan companies have developed innovative new hydrogen production technologies that, with further development, may represent new, low cost, low emission sources of hydrogen.

This plan commits us to:

- Continue to expand SaskPower's Environmentally Preferred Power Program of adding small scale environmentally friendly generation from independent power producers;
- Establish a Bio-Products Centre of Excellence;
- Work with other governments to create an E-85 Corridor across Canada;
- Work with industry to develop E-85 Corridors in the province;
- Work with industry to increase the current average of 7.5 per cent ethanol blend of gasoline sales by 2010;
- Develop a 1.4 billion litre biofuels industry to utilize our natural advantages, create rural jobs, capture environmental benefits, and support our agricultural industry to capture emerging provincial, federal and international market opportunities;
- Develop hydrogen production and utilization pilot projects, including innovative production technologies and fuel station infrastructure; and
- Implement a Government and Crown vehicle purchase policy that requires all vehicles to be hybrid-electric, alternative or flex fuel, or within the top 20 per cent efficiency in their class.

Promote the Creation of Natural Carbon Sinks

Our forests and soils have significant potential as natural "carbon sinks" that remove carbon dioxide from the atmosphere and store it as organic material in the soil.

Research indicates that by 2004, zero-till practices in our agricultural sector were sequestering 18.3 million tonnes of carbon dioxide in Saskatchewan soils. The *Plan* assumes an emissions credit trading system will be established in Canada. Currently, industries and people are purchasing offset credits against their greenhouse gas emissions from a variety of commercial vendors. For example, several thousand Saskatchewan farmers are selling credits for sequestered carbon dioxide that are traded on an American exchange. However, even without the sale of credits, trends in current farm practice will lead to an increase in the amount of carbon stored in Saskatchewan soils. The increases occurring after 2004 will contribute toward our reduction targets.

Forests are also natural carbon sinks. Past forest renewal practices and other disturbances have left thousands of hectares of land in a condition defined as not-sufficiently-regenerated. Between 1990 and 2006, 21,600 hectares of these lands were planted. By 2017, 20,000 more hectares of this land will be prepared, planted and tended. As these forests reach maturity they will capture and store significant carbon.

To capitalize on these trends, we will:

- Encourage farmers to establish agricultural soil sinks to remove over 25 million tonnes of carbon dioxide annually from the atmosphere by 2012, increasing to more than 37 million tonnes per year by 2050; and
- Reforest 20,000 hectares of not sufficiently regenerated land by 2017, sequestering the equivalent of about 4.9 million tonnes of carbon dioxide over the life of the plantation.

Reduce Methane and Other Emissions from Our Oil, Gas and Agricultural Sectors

The agricultural sector is responsible for significant emissions of methane and nitrous oxide. Methane is produced through the digestive processes of cattle and other livestock, and also from the decomposition of manure. Nitrous oxide is produced from the inefficient use of nitrogen based fertilizer and manure management. The petroleum industry also has significant emissions associated with the venting of methane from oil production. Methane is a significant greenhouse gas – having a warming effect 21 times as great as carbon dioxide. As the energy and the agricultural sectors are among the largest sectors of our economy, methane contributes significantly to greenhouse gas emissions in Saskatchewan.

Improved feeding techniques will help to reduce greenhouse gas emissions from cattle herds. There is also opportunity to improve methods for using nitrogen fertilizer and managing manure from intensive livestock operations. Adopting these measures will save farmers money, improve the efficiency of agricultural operations and reduce the environmental impact of agricultural practices.

Similarly, opportunities to reduce the venting of methane from oil production facilities will improve the efficiency of the oil and gas industry. Captured methane may be sold, or used on site for process heat or the generation of electricity.

We will immediately:

- Work with the oil and gas industry to prepare a report and recommendations, before the end of 2008, regarding initiatives and policies to improve the industry's efficiency and competitiveness, and to reduce emissions from flaring and venting along with fugitive emissions;
- Invest, through SaskEnergy, up to $20 million in pipeline expansions and up to $12 million with industry to participate in the development of flare gas processing opportunities; and
- Work with agricultural producers, industry and researchers to develop more efficient management practices and technology to provide a 20 per cent reduction in agricultural emissions, per animal of livestock production and per acre of crop production, by 2030.

Building a Sustainable Non-Renewable Resource Sector

Saskatchewan is blessed with an abundance of non-renewable energy resources, including conventional oil, natural gas, coal, and uranium; as well as potential resources such as oil sands, oil shale and natural gas from coal. In partnership with the private sector, Saskatchewan will seek innovative development and use of these resources to provide energy locally, nationally and internationally while reducing and minimizing their environmental impact. It is important to note that Saskatchewan uses only 11 per cent of the energy produced in the province.

Conventional Oil, Gas and Coal

Saskatchewan is currently Canada's second largest producer of crude oil with production doubling since 1991. We are the third largest producer of natural gas and of coal. These resources provide immense amounts of energy to the province, nation and continent and large economic benefits to citizens in the form of jobs, investment and revenues. At the same time these resources and their production, together with electricity generation, are the single largest contributor to Saskatchewan's greenhouse gases – in combination, producing more than half of our emissions.

Saskatchewan's challenge is to find ways to continue to produce economic benefits from these resources, while leading the continent in minimizing the environmental impact of their development, production, and sustainable use. We are already researching, demonstrating, or using a wide array of technologies that will help us achieve our goal. However, emissions can and must be reduced further.

We are committed to:

- Continuing to support research and development of technology for use by the oil and gas and electricity sectors, such as carbon capture and sequestration; clean coal technologies; polygeneration technologies; and technologies that can reduce flaring, venting and fugitive emissions in the oil and gas sector; and
- Identifying economic opportunities for the development of new energy resources such as oil sands, oil shale and natural gas from coal.

Uranium

As the largest uranium producer in the world, Saskatchewan uranium significantly reduces the world's greenhouse gas emissions by supporting nuclear power generation that displaces coal, oil and natural gas fired generation. The global emissions avoided annually through the use of Saskatchewan uranium are many times larger than Saskatchewan's total greenhouse gas emissions and are equivalent to about one half of Canada's emissions. In this way, Saskatchewan is already a major contributor to global emission reductions.

Saskatchewan's *Energy and Climate Change Plan* encourages continued support and development of this resource through exploration activity, as well as the expansion of ore body development, mining and further processing. At the same time, we will maintain the highest standards of occupational health and safety and of environmental protection to reduce risk and ensure ongoing jobs for northerners. This is consistent with Saskatchewan's *Action Plan for the Economy*, which supports and actively pursues new opportunities for value-added activity within the province from the uranium ore mined here.

Ongoing assessments of the potential for a nuclear reactor to supply Saskatchewan's domestic requirements or for export are regularly carried out by SaskPower. Given the abundance and variety of lower-cost conventional and renewable energy sources which are already clean or to which clean technologies can be applied; the size, age and economics of currently licensed reactor technology; the environmental impact of cooling water requirements; the public concern with the proximity to population centres in the event of a severe accident; and the ultimate decommissioning costs, SaskPower's studies identify that current nuclear power technology is not a viable option for any new or replacement electricity generation that will take place before 2020.

The Times of Transition, Adaptation, Youth Involvement and Leadership

The Time of Transition

As Saskatchewan, Canada and the global community make the transition to lower emissions and to sustainable energy sources, Saskatchewan industry will likely make significant voluntary payments into a Technology Fund as a method of complying with industry's mandatory emissions reductions obligations. As well, individuals and organizations may wish to voluntarily purchase offsets for their emissions. It is Saskatchewan's position that all contributions to a Technology Fund required to be paid by industry located in this province ought to be retained in Saskatchewan; and all offset purchases by Saskatchewan industry ought to be sourced from within Saskatchewan to assist us in achieving our vision and goals. To further encourage emissions reductions in Saskatchewan, those individuals and organizations seeking to voluntarily purchase offsets for their carbon dioxide emissions should have the opportunity to do so "at home".

Therefore, the Government of Saskatchewan will:

- Establish a voluntary, provincially certified Emissions Offset Fund to allow organizations or the public to make voluntary payments to offset their greenhouse gas emissions by supporting emission reduction initiatives in Saskatchewan; and
- Establish a Saskatchewan Technology Fund to receive voluntary payments from Saskatchewan industry as a method of complying with industry's mandatory emissions reduction obligations under the federal climate change plan.

The Time of Adaptation

The United Nations Intergovernmental Panel on Climate Change has projected that, in the absence of interventions, the concentration of carbon dioxide under most scenarios will rise to the extent that it will trigger the average world temperature to increase by 2.5 degrees Celsius by 2100. Extreme weather events, new deserts, agricultural failures, large-scale population movements and mass starvation could result. In Saskatchewan, climate change is expected to affect forestry, fisheries, agriculture, water, energy and transportation.

The high levels of greenhouse gases already in the atmosphere will remain and will continue to affect our environment for many years to come, despite actions taken now. Saskatchewan is already a little drier and warmer, on average, than it was decades ago. If trends over the past century continue, Saskatchewan will likely experience earlier springs and later falls. Average night temperatures in winter may increase by up to 10 degrees Celsius, and summer temperatures may increase by up to 2 degrees. There will likely be more extremely hot days.

In addition to becoming drier, extreme weather events such as prolonged drought, heat waves, storm flooding and tornado force winds are predicted. Furthermore, it is anticipated that water quantity and quality will be affected by increasing water temperature, flows and runoff rates.

How we adapt to these events is critical to our future economic and social well-being. Saskatchewan's *Energy and Climate Change Plan* includes important initiatives to assist Saskatchewan people, communities and businesses to prepare for climate change, including:

- Working with other provinces and the federal government to encourage a strong and equitable national response to Canada's climate change and adaptation challenges;
- Working with the Prairie Adaptation Research Collaborative, the Saskatchewan Research Council, the Saskatchewan Forestry Centre and other stakeholder groups to develop a province wide adaptation strategy by 2008;
- Integrating climate change impacts and adaptation into risk assessments of business and strategic plans of all Crown corporations and departments;
- Supporting critical local research on climate change impacts and adaptation;
- Expanding the provincial watershed planning process so that water supplies are better protected and less vulnerable to climate change, and use this local capacity to lead necessary adaptation measures; and
- Preparing for the increased risk of extreme weather events by developing the necessary policy, plans and assessment tools to make best use of available water supplies and protect citizens from flooding.

The Time for Youth Involvement

Young people in Saskatchewan continue to identify that addressing climate change must be a priority. One of the recommendations flowing from the 2007 Saskatchewan Youth Summit was that: *"By 2020, Saskatchewan should become a world leader of excellence in environmentally driven social and economic development."* Youth recognize they play a key role in achieving that goal.

Saskatchewan's *Energy and Climate Change Plan* will build bridges to a greener future. Just as good bridges begin with good planning, good plans begin with knowledge – with education and training. Our education system is already helping youth prepare for the challenges that must be overcome in working toward a greener future. Saskatchewan students learn about resource development, climate change and other environmental issues in their classrooms. However, we must remain diligent in developing further curriculum that integrates all aspects of sustainable development into classroom materials.

Surveys of Saskatchewan's youth show they regularly identify "job opportunities" as an important factor in choosing where to live. As Saskatchewan's economy grows and diversifies, thanks in no small part to the strength of its resource sector, young people are recognizing there are exciting and rewarding careers in Saskatchewan. Green is not just the colour of a healthy environment. It is also the colour of new growth.

Saskatchewan's young people are in a position to take advantage of the broad range of research and employment opportunities that are generated through alternative and renewable energy sources, various climate change adaptation measures and the greening of conventional energy sources. To succeed in this changing labour market, young people, including our First Nations and Métis youth, will require skills training and access to post-secondary education. Therefore the Government of Saskatchewan is committed to:

- Integrating concepts and principles of sustainable development into all appropriate Pre-kindergarten to Grade 12 curricula;
- Working with provincial groups such as Climate Change Saskatchewan, the Saskatchewan Education for Sustainable Development Working Group and the United Nations Regional Centre of Expertise on Education for Sustainable Development/Saskatchewan to provide quality instructional materials and support educators;
- Supporting student action in communities that minimize the impact of climate change through activities such as Youth Forums on Sustainability;
- Supporting and collaborating with organizations offering workshops for teachers regarding climate change and other sustainability issues;
- Strengthening provincial and regional planning processes to identify and respond to labour market demands related to the green economy, including climate change initiatives;
- Working with SIAST and the regional colleges and other educational institutions to ensure appropriate educational and training opportunities are available in those areas that will require specialized training in energy efficiency retrofit, solar and wind installation and biomass applications; and
- Working collaboratively with First Nations and Métis organizations and training institutions to help ensure First Nations and Métis people have the knowledge and skills they need to establish successful careers within the green economy.

The Time for Leadership

The Government of Saskatchewan recognizes that it must lead by example. Over the past decade, we have adopted new energy conservation, efficiency and waste management technologies and procedures. This has resulted in lower energy bills, reduced operating costs and fewer greenhouse gas emissions associated with the operation of government.

Going forward, we are committed to expanding our purchase of green power, improving the emission standard for government vehicles, developing a new energy efficiency code for government buildings, and ensuring sustainable practices are a part of all government planning. We will achieve these goals by:

- Implementing a Government and Crown vehicle purchase policy that requires all vehicles to be hybrid-electric, alternative or flex fuel, or within the top 20 per cent efficiency in their class;
- Establishing a Minister's Council on Sustainability and Climate Change to provide advice to the province on developing a sustainable future and to meet the challenge of climate change;
- Establishing a performance standard of at least 30 per cent greater than the Model National Energy Code for all new government buildings with significant energy consumption;
- Meeting a target to have green power provide 36 per cent of total electricity requirements for government buildings by 2008; 50 per cent by 2009; and 90 per cent by 2010;
- Investing $28 million to extend the Saskatchewan EnerGuide for Houses Program to 2011;
- Extending the Saskatchewan Home Energy Improvement Program to 2011 to reduce energy use in low and moderate income households;
- Consulting with municipalities and the construction industry in the development of a Saskatchewan Energy Code for Commercial Buildings by the end of 2009 that will achieve energy efficiency standards that are 25 per cent better than current national standards; and
- Creating an environment to ensure the residential energy efficiency initiatives developed by the Saskatchewan Home Builders Association are fully implemented across Saskatchewan.

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